Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and	)	ET Docket No. 14-165
	)	
Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap	)	
	)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions	)	GN Docket 12-268
	)	
Promoting Spectrum Access for Wireless Microphone Operations	)	GN Docket No. 14-166

To: Federal Communications Commission
(Filed electronically through ECFS)

COMMENTS OF CP COMMUNICATIONS, LLC

1. CP Communications, LLC ("CP Communications" or "Company"), submits these Comments in the above-captioned proceedings[1]. CP Communications is a leading source for the

[1] *See In the Matter of Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap, et. al.*, ET Docket No. 14-165, GN Docket No. 12-268, Notice of Proposed Rulemaking, FCC 14-144 (rel. Sept. 30, 2014) ("*White Spaces NPRM*") 79 Fed. Reg. 69,710 (Nov. 21, 2014); *In the Matter of Promoting Spectrum Access for Wireless Microphone Operations, et. al.*, GN Docket Nos. 12-268, 14-16, Notice of Proposed Rulemaking, FCC 14-145 (rel. Sept. 30, 2014) ("*Wireless Microphone NPRM*") (Collectively, the "*NPRMs*"; 79 Fed. Reg. 69,387 (Nov. 21, 014). Currently, comments

rental of wireless production equipment -- including wireless microphones, wireless in-ear monitors, wireless intercom and wireless cueing -- to the broadcast, theatrical, live event, film, corporate, entertainment and other industries. CP Communications also sets up, manages, and supervises the operation of wireless equipment for its customers. CP Communications owns and operates wireless microphones in the 500 & 600 MHz band and holds licenses for wireless microphones under Part 74 of the FCC's rules. The Company's business is highly specialized, requiring hardware and skills that lead most high-level professional users to contract with outside vendors. Only a handful of companies offer these services, but their services are critical to the activities of their customers.

2. CP Communications supports the Comments submitted by Sennheiser Electronic Corporation ("Sennheiser") in these proceedings. As Sennheiser points out, and as CP Communications has explained in its previous filings, wireless microphones operating in the 500 & 600 MHz band are generally high quality, professional grade equipment used for the creation of information and entertainment content that is a critical part of the content distribution the FCC hopes to facilitate through the wireless revolution. These devices are essential for all kinds of content production, including news gathering, and live entertainment (such as theatrical productions, musical concerts, special events and sports), among other things. Wireless has replaced wired microphones in virtually all professional situations, giving on-camera performers the ability to move about with no audio quality degradation and permitting more even and more ubiquitous sound capture than wired equipment can provide.

3. Professional operational requirements necessitate that wireless microphones and similar equipment utilize anywhere from a few to tens of 6MHz channels. In attempting to preserve

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related to the NPRMs are due on February 4, 2015, and reply comments are due on February 25, 2015.

a minimum level of high quality RF performance, an absolute minimum of two separate 6 MHz channels of clean UHF spectrum must be available on a reserved basis for hypercritical wireless microphones and in-ear monitors.[2] The Commission has previously recognized the importance of wireless microphones in public gathering places of all kinds and that many activities would be disabled without adequate clear spectrum for microphones. While the Commission may be able to find new spectrum in the future, it must recognize that nothing else is available now, given factors such as body signal absorption and battery life limitations. Given today's technology, there is no practical alternative for critical uses; so sweeping wireless microphones out of most of the 600 MHz band (as well as the 500 MHz band due to the subsequent post auction television broadcaster re-packing) or the proposed use of the 600 MHz guard bands and duplex gap, are poor option for wireless microphone users due to the requirements of professional wireless microphone users and will unavoidably result in a degradation of audio delivery that public audiences expect to experience. Accordingly, CP Communications supports Sennheiser's proposal that two distinct and separate blocks of UHF spectrum be made available for wireless microphone use and not for white space device use. Specifically, CP Communications supports Sennheiser's proposal that the Commission assign the one unassigned, or "naturally occurring," television channel solely for wireless microphone use and that wireless microphones be allowed to share Channel 37 with the incumbents. Wireless microphone users have worked with television users and not caused interference for years and will be able to do the same with Channel 37 by cooperation and by the limitation of this channel to Part 74 licensed operators.

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[2] While an occasional momentary blip in communication may be acceptable for operational communications by backstage and support personnel, channels for capture of audio for audiences and to feed audio back to performers must operate perfectly at all times.

4. Wireless microphone users are substantially different than white space device users and should not be similarly regulated. Wireless microphones are low power devices, sensitive to interference from other users and have different operational issues. Accordingly, as posited by Sennheiser, the wireless microphones should not be required to register with a white space database in order to operate. As stated above, wireless microphone users have worked with other industries in other bands for years without causing interference and can do so again without the added and unnecessary burden of registration in a white space database.

5. There is a fundamental error in requiring wireless microphones to operate at the same distances as white space devices and at 20 milliwatts in the duplex gap and guardband in an attempt to protect subscriber handsets from potential adjacent channel interference.[3] Transmissions to handsets are more susceptible to interference in situations when they are operating at some distance from a base station or when the path is obstructed; e.g., inside of a building. In these situations, the received signal from the base station might be weak and it is possible that the handset could be blocked by a nearby interferer. In this case, the interference would be the result of desensitizing the front end of the handset receiver by a co-channel interferer, not out of band emissions since those will be very low.

6. The Commission's suggestion that a group of microphones would have the same interference potential as a 4 watt EIRP base station is ill-founded. In the case of the base station, the 4 watts is emanating from one antenna, but in the case of microphones, it is the result of a

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[3] *See In the Matter of Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission's Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap, et. al.*, ET Docket No. 14-165, GN Docket No. 12-268, Notice of Proposed Rulemaking, FCC 14-144 (rel. Sept. 30, 2014) ("*White Spaces NPRM*") 79 Fed. Reg. 69,710 at para. 167 and 168 (Nov. 21, 2014).

number of low powered transmitters that are spread out. One or two microphones might be near a particular handset, but it is unlikely that the entire group would be, and thus the aggregate RF energy level at any given point in space will be far less than with a single 4W ERP transmission.

7. In paragraph 167 the Commission expresses concerns that wireless microphones would interfere because they would not detect anything in the downlink band and would assume that the channel is clear.[4] Transmissions in the downlink band will be coming from a base station and will have to be strong enough for a handset to use with all of the limitations of its receiving ability that are due to antenna inefficiency and body absorption. It is not plausible that a sensitive wireless microphone receiver with a relatively efficient antenna would be unable to hear the base station signal if it is strong enough to be usable by a handset.

8. One of the most important goals of these proceedings, should be to establish a replacement for lost UHF spectrum as well as additional spectrum to meet increased demand for wireless microphone use. The majority of businesses that actually purchase and own professional wireless microphones, communications and other equipment are sound vendors like CP Communications. The overwhelming majority of these sound vendors are companies classified as small businesses under any definition, whether by the Commission or the Small Business Administration. The several hundred thousand dollar expense to replace inventory, when that equipment has many more years of useful life, is a major economic strain for any company, but especially for a small business. Unlike consumer wireless gear, these types of wireless microphones are not designed or mass-manufactured to be replaced frequently. Indeed, professional grade equipment has a much longer useful life and, due in part to higher costs, both

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4 *Id.*

rental vendors and direct users must purchase these devices with a view towards relatively long-term usage and represent a considerable investment.

9. CP Communications spent in excess of $300,000 to migrate out of the 700 MHz and move to the band below 600 MHz when the digital TV transition forced wireless microphone users to relocate out of the 700 MHz band only a few years ago.[5] Many direct users replaced 700 MHz equipment with devices operating in the 600 MHz band without suspecting that they would be forced into the same predicament, only a few years later.[6] These companies, most of whom are small businesses complying with Commission rules, are now being forced to move again, incurring additional expense that is a heavy economic burden, with no compensation proposed apparently partly based on the mistaken impression that the equipment has short life cycles. Equity and fairness dictate that wireless microphone users be compensated for being forced to bear a double hit and again to vacate a band through no fault of their own.[7]

10. Accordingly, CP Communications supports the comments submitted by Sennheiser including supporting the prohibitions of white space devices from operating on the first 2 vacant TV channels above and below channel 37, assigning 2 separate UHF channel for wireless microphone use and reserving Channel 37 for hyper-critical wireless microphone use. CP Communications also opposes the required registration of wireless microphones in the white space

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5 *See Wireless Microphones Are Not Permitted to Operate on Certain Frequencies after June 12, 2010; Users are Urged to Check Their Equipment and Take Necessary Steps to Ensure Compliance*, Public Notice, 25 FCC Rcd 7409 (Enforcement Bur. 2010).

6 The Commission recommends that wireless microphone users move below 600 MHz on its website (http://www.fcc.gov/guides/wireless-microphone-faqs; paragraph entitled *"How do I make sure I buy the right kind of wireless microphone?"*).

7 If users are required to migrate to a new band now, so shortly after replacing their equipment, they will be concerned about whether the Commission will do the same thing to them again in a few more years if TV channels are further truncated.

database. The wireless microphone industry has worked for years to cause no interference to TV operations and has the expertise to continue to do so with white space devices without registration. Also, as has been submitted previously by CP Communications and Sennheiser, wireless microphone users who will be impacted by the television spectrum re-pack should be accommodated by making adequate UHF spectrum available for their vital activities and those costs associated with the transition should be reimbursed. Finally, CP Communications opposes the requirement that wireless microphones operate at the same distances as white space devices, at 20 milliwatts and reject the position that minimum separation distance requirements are necessary to prevent harmful interference.

Fletcher, Heald & Hildreth, P.L.C.
1300 N. 17th St., 11th Floor
Arlington, VA 22209-3801
Tel. 703-812-0404/0478
Fax 703-812-0486
tannenwald@fhhlaw.com
mcclure@fhhlaw.com

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Respectfully submitted,

Peter Tannenwald
Michelle A. McClure

Counsel for CP Communications, LLC

CERTIFICATE OF SERVICE

I, Sandi Kempton, a legal assistant for Fletcher, Heald & Hildreth, P.L.C., hereby certify that on this 4th day of February, 2015, I caused a copy of the foregoing "Comments" to be served via hand delivery and email, upon the following:

Laura Stefani
Fletcher, Heald & Hildreth, P.L.C.
1300 North 17th Street, 11th Floor
Arlington, VA 22209
stefani@fhhlaw.com

Sandi Kempton